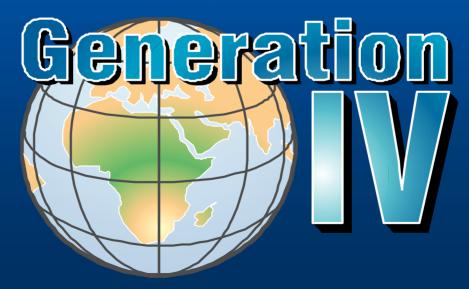
Summary of GIF Comments on Evaluation Methodology

GIF Policy and Experts Meeting: London February 18-19, 2002



Comment Categories

- 1. Method and Application
- 2. Criteria and Metrics
- 3. Editorial



1. Method and Application Comments

- Use of ALWR as a Reference
- Relative state of system maturity
- Combination of Scores and Distributions
- Cost/Benefit
- Weighting
- Consistency and Bias



Use of ALWR as Reference

- Is this a good reference?
- Discussion:
 - Reference is primarily an ALWR (Generation III) with once through fuel cycle
 - Cost data was updated as shown in Appendix 2
 - This reference sets baseline for Gen IV to go beyond most modern deployed plants
 - International data from NEA was used for recent plant costs
 - Believed to be most objective reference



Relative State of System Maturity

- Mature systems may be rated more conservatively
- Discussion:
 - Method encourages TWGs to treat system potential optimistically
 - Cautions against bias for less developed systems
 - Will be discovered in consistency checks



Combination of Scores and Distributions

- Criteria/Metrics not completely independent
- Discussion:
 - Since goals were given as discrete, it was decided to treat them as independent
 - The objective is to find a figure of merit that maintains information about the uncertainity
 - Treatment as independent does result in smaller distributions when scores are added
 - Effect is similar for all systems
 - Purpose is to discriminate not to characterize



Cost/Benefit

- Economic evaluations don't allow offsetting of costs with perceived benefits
- Discussion:
 - Benefits are captured by criteria/metrics in other sections
 - Economic quantification of benefits would be a significant additional effort



Weighting

- Care should be used in establishing weights
- Discussion:
 - Individual criteria/metric weights established by EMG (modified by TWG comments)
 - Equal weights were specified for Goals
 - Goal weights are policy judgments and should only be established by project leadership



Criteria Weighting: SU-1 and SU-2

SU2-2

Sustainabii	ity-1: Resource utilization	
SU1-1	Fuel utilization	1
Sustainabil	ity-2: Waste minimization and m	anagement
SU2-1	Waste minimization	
	Mass of waste	0.2
	Volume of waste	0.2
	Long-term heat output	0.2
	Long-lived radiotoxicity	0.2

Environmental impact

The relative importance of the criteria varies with national perspective and system concept priorities. A default of equal weighting for each of the five metrics is adopted at this stage of the evaluation.



0.2

Criteria Weighting: SU-3

Sustainability-3: Proliferation resistance

SU3-1	Separated Materials	0.4
	Spent fuel characteristics	0.4
SU3-2	Passive resistance to sabotage	0.2

The characteristics of fresh fuel (SU3-1.1) and spent fuel (SU3-1.2) are considered equally important: both increase the time and difficulty of nation-state diversion, and both contribute to increasing the difficulty of subnational theft (SU3-2).



Criteria Weighting: SR-1 and SR-2

Safety and Reliability-1:

SR1-2	Reliability Worker safety - routine exposures Worker safety - accidents	0.6 0.2 0.2
	Reliability-2:	0.2

SR2-1	Robust safety features	
	Reliable reactivity control	0.2
	Reliable heat removal	0.2
SR2-2	Models with well characterized uncertainty	
	Dominant phenomena models have	
	low uncertainty	0.2
	Long fuel thermal response time	0.2
	Integral experiments scalability	0.2



Criteria Weighting: SR-3

Safety and Reliability-3:

SR3-1	Source term	0.25
Mechanisms for energy release		0.25
SR3-2	Robust mitigation	
	Long system time constants	0.25
	Long and effective holdup	0.25



Criteria Weighting: EC-1 and EC-2



Consistency/Bias

- Inconsistent application could result in biased scoring of systems
- Discussion:
 - EMG assists in interpreting criteria/metrics
 - CGs look for consistency across TWGs
 - RIT leading TWG co-chairs in consistency checks



2. Criteria and Metrics Comments

- Proliferation Resistance
- Economics



Proliferation Resistance

- Evaluations are inadequate
- Use TOPS Report
- Include cost of safeguards in R&D Costs
- Discussion:
 - EMG will examine current criteria in addressing GIF comments and consistency of evaluations
 - TOPS Report was one input
 - Improvement in metrics anticipated for future evaluation phases



Economics

- Base metric on Profitability only
- Use lower discount rate
- Consider marketability of systems
- Discussion:
 - Goals require more than Profitability
 - Future profitability and marketability analyses entail more uncertainties than cost
 - Discount rate varies by country and region



3. Editorial Comments

- Clarity
- Discussion:
 - EMG authors will improve the clarity of the document to the best of our abilities

